

REMARKS

Claim 25 is objected to and Claims 4-14, 17-23, 25 and 26 are rejected under 35 USC §103. The applicants respectfully traverse these rejections and request reconsideration of the application in view of the above amendments and the following remarks.

Claims 4 and 25 have been amended and Claim 26 has been canceled. None of the changes constitute new matter since this clarification of the claims is supported by the original disclosure.

OBJECTION

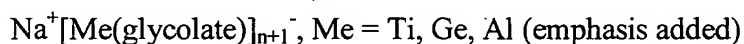
Claim 25 was objected to for depending on a canceled claim. Claim 25 has been amended and now depends on pending claim 4.

REJECTIONS UNDER 35 USC §103

Claims 4-14, 17-23, 25 and 26 were rejected under 35 USC 103(a) as being unpatentable over U.S. Patent no. 6,066,714, hereinafter referred to as "Putzig", in view of the published "New catalyst systems for producing polyethylene terephthalate and their effects on light resistance" by R. Gutmann (hereinafter referred to as "Gutmann"). Specifically, the Office Action suggests Putzig discloses an esterification process of a dicarboxylic acid compound having 2 to 30 carbons, linear or branched and an alcohol with a titanium complex catalyst in an amount of 0.1 to 100ppmw and Gutmann discloses a complex glycolate with $\text{Na}^+[\text{Me}(\text{glycolate})]_{n+1}^-$ where Me is Ti, Ge or Al with poor solubility in ethylene glycol.

A close reading of Gutmann shows the following:

In addition to the simple [non-polymeric] metal glycolate catalysts, a series of complex glycolates was also used and studied. They each consisted of an **equimolar** composition of sodium glycolate and one of the metal glycolates which was described above and for which the following structure was postulated:



Gutmann discloses an “equimolar” composition for the complex, i.e., polymeric, metal glycolates.

Claim 4 has been amended and now reads in part “wherein the molar ratio of the polymeric titanium glycolate and the alkali metal glycolate is 1.25:1 to 100:1”. Support for this language is found on page 3, lines 15-16, and Claim 1, as originally filed. This change in language has been made to Claim 4 to clarify the claimed subject matter.

Every limitation in the claims must be given effect rather than considering one in isolation from the others [In re Geerdes, 491 F.2d 1260, 180 USPQ 789 (CCPA 1974)]. The patentable difference of the present invention over the references is that the catalyst complex comprises a polymeric titanium glycolate represented by the formula $[\text{TiO}_4(\text{CH}_2)_4]_n$ wherein the molar ratio of the polymeric titanium glycolate and the alkali metal glycolate is 1.25:1 to 100:1. The person skilled in the art is not assumed to act out of idle curiosity, but only with some specific technical purpose in mind. In other words, the person skilled in the art cannot be assumed to seek for an alternative without some concrete technical reason. There must be an explanation of the “common knowledge and common sense” which is relied upon. [Dystar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co. 464 F.3d 1356, 80 USPQ2d 1641, 1649 (2006)]. There must

be some rationale, articulation or reasoned basis to explain why the conclusion of obviousness is correct. [Alza Corp. v. Mylan Labs., 464 F.3d 1286, 80 USPQ2d 1001, 1003-1004 (2006)].

The applicants submit that the references cited and relied on by the Examiner do not provide a *prima facie* case of obviousness of the presently pending claims. In order to establish a *prima facie* case of obviousness, the scope and content of the prior art are determined; differences between the prior art and the claims at issue are ascertained and the level of ordinary skill in the pertinent art resolved. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (U. S. Sup. Ct., 1966); *KSR International Co. v. Teleflex Inc.* 82 USPQ 2d 1385, 1388 (U.S. Sup. Ct., 2007). As noted above, Gutmann discloses and equimolar composition and the present invention claims a molar ratio of the polymeric titanium glycolate and the alkali metal glycolate of 1.25:1 to 100:1. The references, alone or in combination, do not teach, disclose or suggest a non-equimolar composition having a molar ratio of the polymeric titanium glycolate and the alkali metal glycolate of 1.25:1 to 100:1.

Even if a *prima facie* case of obviousness were established by the cited references, the unexpected results of the claimed invention would satisfy the requirements of patentability. Claim 4 reads in part "wherein the molar ratio of the polymeric titanium glycolate and the alkali metal glycolate is 1.25:1 to 100:1". Relevant portions of the table from page 8 of the present application are reproduced below:

Example	Catalyst ppm	Total metal content of catalyst	L*	a*	b*	Time for polycondensation	M _n (g/mol)
3	300 ppm Ti-glycolate 150 ppm Na-glycolate	450 ppm	81.0	-1.6	4.3	1h 56 min	23,900
4	409 ppm Ti-glycolate 40.9 ppm Na-glycolate	449.9 ppm	80.5	-1.1	3.2	1h 24 min	24,100
7	50 ppm Ti-glycolate 40 ppm Na-glycolate	90 ppm	83.1	-2.8	4.0	1h 25 min	24,200
8	40 ppm Ti-glycolate 30 ppm Na-glycolate	70 ppm	83.7	-2.2	1.2	1h 22 min	23,500
9	30 ppm Ti-glycolate 20 ppm Na-glycolate	50 ppm	82.6	-2.6	1.0	1h 27 min	24,400
10	20 ppm Ti-glycolate 10 ppm Na-glycolate	30 ppm	85.3	-2.3	0.9	1h 34min	24,000

This data demonstrates the effectiveness on the important yellow-blue factor (b*) of the catalyst complex of i) a polymeric titanium glycolate represented by the formula $[\text{TiO}_4(\text{CH}_2)_4]_n$ wherein n is up to 200; and ii) an alkali metal glycolate, wherein the total content of the metals of the catalyst is from 1 to 70 ppm based on the esterification component compared to catalyst complex of i) a polymeric titanium glycolate represented by the formula $[\text{TiO}_4(\text{CH}_2)_4]_n$ wherein n is up to 200; and ii) an alkali metal glycolate, wherein the total content of the metals of the catalyst is over 70 ppm.

The polymer from the Ti/Na glycolate complex catalyst with the total content of the metals of the catalyst from 1 to 70 ppm shows significant reduction toward neutral for the yellow-blue factor (b*) compared to that from a Ti/Na glycolate complex catalyst with the total content of the metals of the catalyst over 70 ppm.

A Petition and Fee for Extension of Time under 37 CFR §1.136(a) is being filed concurrently with this paper. The Commissioner is hereby authorized to charge fees due by filing this paper or to credit any overpayment to Account No. 502025.

Respectfully submitted,



Jim Wheelington
Reg. No. 33,051
SABIC Americas, Inc.
SABIC Technology Center
1600 Industrial Blvd.
Sugar Land, Texas 77478
(281) 207-5719
Customer no. 30691